

What is claimed is:

1. a method comprising:

controlling an access of a first station to a shared wireless media based on a collision rate parameter calculated from at least a first probability value, representing a probability to transmit by the first station a data packet within a desired time slot of a contention window and a second probability value representing a probability of said data packet, when transmitted by the first station within the desired time slot of said contention window, to collide with at least one other data packet transmitted by a second station.

2. The method of claim 1, further comprising:

calculating a third probability value representing a probability of the data packet transmitted by the first station, when transmitted outside the contention window, to collide with at least one other data packet,

wherein the collision rate parameter is calculated from at least the first, second and third probability values.

3. The method of claim 1, comprising:

generating a probability of collision histogram by accumulating values of the collision rate parameter of the desired slot of the contention window.

4. The method of claim 1, wherein calculating the first probability value comprises:

counting a first number of data packets transmitted within said contention window;

counting a second number of data packets transmitted from a station to provide a second number; and

calculating the first probability by dividing the second number by the first number.

5. The method of claim 1, comprising:

calculating the second probability by counting a first number of data packets transmitted within said desired slot;

counting a second number of data packets transmitted within said contention window; and

calculating the second probability value by dividing the first number by the second number.

6. The method of claim 5, comprising:

storing the first number in a first array and storing the second number in a second array, wherein a common index to the first and second arrays indicates on the desired time slot of the contention window of which the first number and the second number related to.

7. The method of claim 6, comprising:

transmitting an additional data packet by the first station;

recalculating the second probability value; and

updating the first and second arrays according to the recalculated second probability.

8. The method of claim 1, comprising:

recalculating the first probability for an additional transmitted data packet.

9. A station comprising:

a processor to control an access of the station to a shared wireless media based on a collision rate parameter calculated from at least a first probability value representing a probability of the station to transmit a data packet within a desired time slot of a contention window and a second probability value representing a probability of said data packet, when transmitted by the station within the desired time slot of said contention window, to collide with at least one other data packet transmitted by another station.

10. The station of claim 9, wherein the processor is able to calculate in parallel the first probability and the second probability.

11. The station of claim 9, wherein the processor is able to generate a probability of collision histogram by calculating an estimated collision rate parameter of the desired slot of the contention window.

12. The station of claim 9, wherein the processor comprises:

a first counter to count a first number of data packets transmitted within said desired slot; and

a second counter to count a second number of data packets transmitted within said desired slot or within at least one other slot of said contention window.

13. The station of claim 12 comprising:

a software module to calculate the second probability by dividing the first number with the second number.

14. The station of claim 12, wherein the processor comprises:

a first array to store the first number;

a second array to store the second number; and

an index counter to provide an index of the desired time slot to the first array and to the second array.

15. The station of claim 12, wherein the processor comprises:

a third counter to count a third number of data packets transmitted within said contention window;

a fourth counter to count a fourth number of data packets transmitted from a station; and

a software module to calculate the first probability by dividing the third number by the fourth number.

16. A station comprising:

- an internal antenna to transmit a data packet;
- a processor to control an access of the station to a shared wireless media based on a collision rate parameter calculated from at least a first probability value representing a probability of the station to transmit the data packet within a desired time slot of a contention window and a second probability value representing a probability of said data packet, when transmitted by the first station within the desired time slot of said contention window, to collide with at least one other data packet transmitted by another station.

17. The station of claim 16, wherein the processor is able to calculate in parallel the first probability and the second probability.

18. The station of claim 16, wherein the processor is able to generate a probability of collision histogram by calculating an estimated collision rate parameter of the desired slot of the contention window.

19. The station of claim 16, wherein the processor comprises:

- a first counter to count a first number of data packets transmitted within said desired slot; and
- a second counter to count a second number of data packets transmitted within said desired slot and within at least one other slot of said contention window.

20. The station of claim 19 comprising:

- a software module to calculate the second probability by dividing the first number with the second number.

21. The station of claim 19, wherein the processor comprises:

- a first array to store the first number;
- a second array to store the second number; and

an index counter to provide an index of the desired time slot to the first array and to the second array.

22. The station of claim 19, wherein the processor comprises:

a third counter to count a third number of data packets transmitted within said contention window;

a fourth counter to count a fourth number of data packets transmitted from a station; and

a software module to calculate the first probability by dividing the third number by the fourth number.

23. A wireless communication system comprising:

a first station and a second station wherein at least the a first station having a processor to control an access of the first station to a shared wireless media based on a collision rate parameter calculated from at least a first probability value representing a probability of the first station to transmit a data packet within a desired time slot of a contention window and a second probability value representing a probability of said data packet, when transmitted by the first station within the desired time slot of said contention window, to collide with at least one other data packet transmitted by the second station.

24. The wireless communication system of claim 23, wherein the processor is able to calculate in parallel the first probability and the second probability.

25. The wireless communication system of claim 23, wherein the processor is able to generate a probability of collision histogram by calculating an estimated collision rate parameter of the desired slot of the contention window.

26. The wireless communication system of claim 23, wherein the processor comprises:

a first counter to count a first number of data packets transmitted within said desired slot; and

a second counter to count a second number of data packets transmitted within said desired slot and within at least one other slot of said contention window.

27. The wireless communication system of claim 23, wherein the first station comprises:

a software module to calculate the second probability by dividing the first number with the second number.

28. The wireless communication system of claim 26, wherein the processor comprises:

- a first array to store the first number;
- a second array to store the second number; and
- an index counter to provide an index of the desired time slot to the first array and to the second array.

29. The wireless communication system of claim 26, wherein the processor comprises:

- a third counter to count a third number of data packets transmitted within said contention window;
- a fourth counter to count a fourth number of data packets transmitted from a station; and
- a software module to calculate the first probability by dividing the third number by the fourth number.



30. An article comprising: a storage medium, having stored thereon instructions, that when executed, result in:

controlling an access of a first station to a shared wireless media based on a collision rate parameter calculated from at least a first probability value, representing an attempt by the first station to transmit a data packet within a desired time slot of a contention window and a second probability value representing a probability of said data packet, when transmitted by the first station within the desired time slot of said contention window, to collide with at least one other data packet transmitted by a second station.

31. The article of claim 30, wherein the instructions when executed, result in:

calculating a third probability value representing a probability of the data packet transmitted by the first station, when transmitted outside the contention window, to collide with at least one other data packet,

wherein the collision rate parameter is calculated from at least the first, second and third probability values.

32. The article of claim 30, wherein the instructions when executed, result in:

generating a probability of collision histogram by accumulating values of the collision rate parameter of the desired slot of the contention window.

33. The article of claim 30, wherein the instructions when executed, result in:

counting a first number of data packets transmitted within said contention window;

counting a second number of data packets transmitted from a station to provide a second number; and

calculating the first probability by dividing the second number by the first number.

34. The article of claim 30, wherein the instructions when executed, result in:

calculating the second probability by counting a first number of data packets transmitted within said desired slot;

counting a second number of data packets transmitted within said contention window; and

calculating the second probability value by dividing the first number by the second number.